

SHORT COMMUNICATION

DESCRIPTION OF MALE *PHRYNUS ASPERATIPES* (AMBLYPYGI, PHRYNIDAE) FROM BAJA CALIFORNIA SUR, MEXICO

María-Luisa Jiménez and Jorge Llinas-Gutiérrez: Laboratorio de Aracnología y Entomología, Centro de Investigaciones Biológicas del Noroeste (CIBNOR) Apdo. Postal 128, La Paz, B.C.S. 23000, México. E-mail: ljimenez04@cibnor.mx

ABSTRACT. The first known male of the whip spider *Phrynus asperatipes* (Wood) is described from two oases and other regions of Baja California Sur, México. It differs from the females as follows: males have the carapace (6.5–7.9 mm) and abdomen (11.0–12.4 mm) smaller than females. Also on an average, the femora (2.3 mm) and tibiae (7.2 mm) of the antenniform legs are shorter than in females.

Keywords: Whip spiders, *Phrynus*, Mexico, Baja California, taxonomy

At present, amblypygids of the Baja California Peninsula are represented by two species: *Acanthophrynus coronatus* (Butler 1873) from Sierra de San Lázaro (Quintero 1980) and *Phrynus asperatipes* (Wood 1863) from several localities in the state of Baja California Sur (Quintero 1981; Vázquez-Rojas 1996; Avila-Calvo & Armas 1997). Vázquez-Rojas (1996) agreed with Mello-Leitao (1931), recording *Acanthophrynus spinifrons* (Pocock 1894) from this region. Quintero (1980), in his review of the genus *Acanthophrynus*, considered this species to be synonymous with *A. coronatus*.

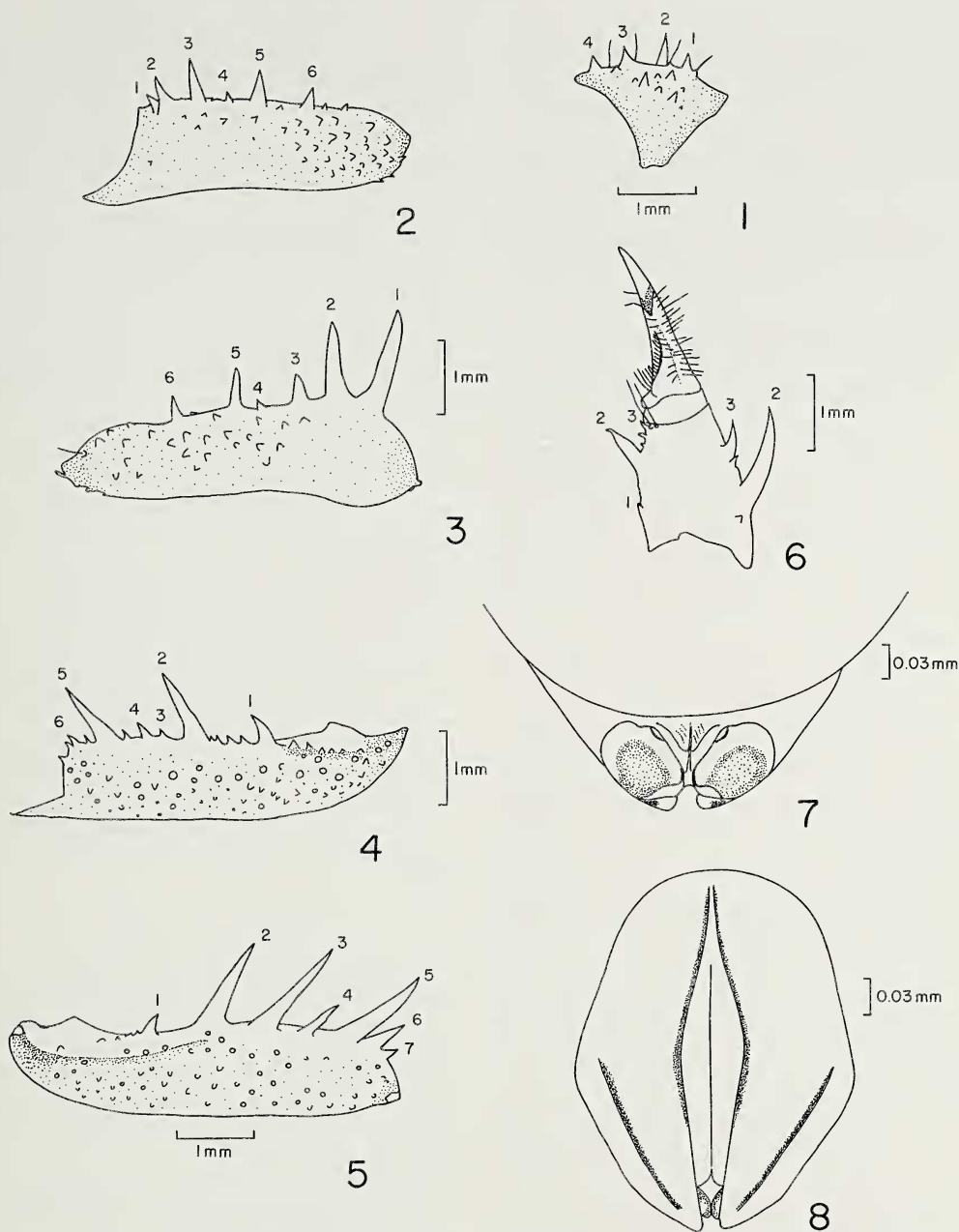
Originally, the whip spider *P. asperatipes* was described by Wood (1863) from Baja California, probably from Baja California Sur, México, based on a specimen of sex not determined in the original description and which was lost (Quintero 1981). Kraepelin (1895) determined this species as *Neophrynus whitei* Kraepelin 1895 and later (1899) as *Tarantula whitei*. Quintero (1981), in his review of the genus *Phrynus*, designated a topotypic female as the neotype of *P. asperatipes*. In 1983, he classified *Hemiphrynus machadoi* Fage 1951 from southern Africa in the genus *Phrynus* and considered the former as the sister group to *P. asperatipes*. Weygoldt (1996) in his study on African amblypygids assigned the first species as unique in the genus *Xerophrynus* of the Phrynichidae and tentatively considered it as an ancestral descendant in the line that conduced this family.

Phrynus asperatipes is endemic to Baja California Sur and has been collected from creeks, a palm oasis, under rocks on a hillside and in a sand dune area, representing the most xeric conditions under

which a species of *Phrynus* has been found (Quintero 1981). Previously, only females of *P. asperatipes* have been known from Baja California. We here present a description of the first males of this species. The specimens were collected near two oases and from several localities in the central and southern areas of the state of Baja California Sur. The measurements (in mm) were made using a standard ocular grid in a Zeiss dissecting stereomicroscope (Quintero 1981; Armas & Pérez-González 2001). Drawings were made with a camera lucida using magnifications of 1.2–3.2X for the pedipalp, trichobothria and genitalia. Abbreviations were used following Quintero (1981) and Weygoldt (2000). Specimens are lodged in the following institutions: National Collection of Arachnids (CNAN) at the Instituto de Biología, Universidad Autónoma de México; Museum of Comparative Zoology, Harvard University (MCZ), American Museum of Natural History, New York (AMNH); and the Arachnid Collection at the Centro de Investigaciones Biológicas del Noroeste (CARCIB).

Phrynus asperatipes (Wood 1863)
Figs. 1–8

Material examined.—MEXICO: *Baja California Sur*: 4 ♂, La Purísima, 26°12'N, 112°03'W, elevation 291 m, 25 & 27 August 2002, 6 April 2003, I. Posada, G. Nieto, M. Correa (CNAN); 2 ♂, San José Comondú, 26°04'N, 111°49'W, elevation 300 m, 29 September 2002, 7 April 2003, I. Posada, G. Nieto, M. Correa (MCZ); 2 ♂, at 116 and 117 km Transpeninsular Highway 19 (Todos Santos-Cabo San Lucas), 22°55'N, 109°59'W, April–February



Figures 1-8.—*Phrynus asperatipes* Wood, male. 1. Left trochanter, anterodorsal view. 2. Left femur dorsal. 3. Left femur ventral. 4. Left tibia ventral. 5. Left tibia dorsal. 6. Basitarsus and tarsus, inner lateral view. 7. Genitalia ventral view. 8. Genitalia dorsal view.

1988, B. Merrill, D. Ward Jr. (AMNH); 1 ♂, Buena Vista, 23°01'N, 110°11'W, 26 January 1988, V.R. Roth (CARCIB).

Diagnosis.—*Phrynus asperatipes* differs from other species of *Phrynus* in having a distinct suture between the pedipalpal tarsus and post-tarsus, which in ventral view has a "V" form; cleaning organ without a dorso-medial row of minute bristles,

basitibia of leg IV not articulated; color of some populations is yellowish brown, not seen in other species of *Phrynus*. As in *P. operculatus* Pocock 1902, *P. asperatipes* has distinct sexual dimorphism in the size of the genital operculum and males have a larger operculum than females.

Description.—*Males* ($n = 9$): Total length 17.4 mm (13.5–17.8 mm), carapace, chelicerae, and ped-

ipalps yellowish brown. Carapace with two orange-brown spots posterior to the frontal area and five dark spots on each side; frontal area light yellow with a black ocular tubercle rounded with a brown circle; sulcus dark brown from which radiate four shallow grooves. Carapace edge dark orange-brown. Legs 1–4 yellowish brown with many darker setiferous tubercles; patella darker than the other segments. Carapace with uniformly scattered setiferous tubercles. Frontal area narrow, with anterior edge lightly curved and tuberculated; frontal process hidden. Ocular tubercle small 0.7 mm (0.6–0.8 mm), separated 0.5 mm from anterior edge. Lateral eyes separated 3.4 mm (2.8–3.9 mm), by 1.2 mm (0.98–1.47 mm) from the anterior edge and by 1.5 mm (1.5 mm) from the lateral edge of the carapace. Carapace length 6.5 mm (5.5–6.9 mm) and width 10.0 mm (8.3–10.2 mm). Dorsal surface of the basal segment of the chelicerae without distal tubercles; with a single tooth on external margin of basal segment and two ridges. Mobil finger with four teeth in ventral surface. Pedipalps: Trochanter with four anterior spines and setiferous tubercles (Fig. 1). Femur Fd1 small; Fd2 shorter than Fd3, and they do not share a common base; Fd4 smaller than Fd1; Fd5 longer than Fd6; Fv1 longer than Fv2; Fv3 longer than Fv4; Fv5 longer than Fv6 (Figs. 2, 3). Tibia Td1 small; Td2 longer than Td5; Td4 not longer than Td3 and Td6; Tv1 longer than Tv7; Tv2 is not almost the same size as Tv3 but much longer; Tv5 longer than Tv4 and Tv6 (Figs. 4, 5). Basitarsus Bd1 very small, 1/5 part of the size of Bd3; Bv1 and Bv3 small, Bv2 well developed and longer than Bv3 (Fig. 6). Tarsus and post-tarsus of the pedipalp not fused, with a visible suture, that in ventral view, has a “V” form. Femur 5.4 mm (4.4–6.7 mm) long; tibia 6.4 mm (4.5–6.6 mm) long and 1.8 mm (1.8 mm) wide; basitarsus 2.7 mm (2.0–2.7) long and 1.2 mm (1.2–1.8 mm) wide. Tarsus 2.5 mm (2.0–2.5 mm) long. Legs: Second tarsomere of all tarsi without a transverse line on distal end. Flagellum of the antenniform leg with 92 segments: 29 tibial subarticles and 63 tarsal subarticles. Femur 13.8 mm (10.6–15.6 mm), tibia 23.8 mm (19.3–23.8 mm), tarsus 24.3 mm (20.0–24.3 mm). Leg II: Femur 8.6 mm (8.2–10.0 mm), tibia 8.5 mm (7.6–10.2 mm). Leg III: Femur 9.8 mm (7.6–11.3 mm), tibia 9.5 mm (7.4–11.9 mm). Leg IV: Femur 8.0 mm (6.8–9.8 mm), tibia (5.9/0.1/2.9/4.9) (8.9/1.6/4.0/6.2)–(5.8/0.1/2.5/4.5), tarsus (1.0/0.4/0.1/0.8) (0.8/0.2/0.4/1.1)–(0.6/0.1/0.3/0.7). Basitibia of leg IV not articulated; trichobothrial ratios: bt 0.2, bf 0.1, bc 0.4, sci 1.8. Sternum tripartite, anterior sternite thin and short with three long middle setae and 18 basal setae of different sizes; median and posterior sternites not conspicuous, first with four setae and last with three setae. Abdomen 11.0 mm (7.8–11.0 mm) long, with light yellow segments and two middle darker spots, anterior segment with two

brown depressions, lateral sides dark yellow, venter light yellow. Genital operculum 3.8 mm (2.9–3.9 mm) long and 5.4 mm (3.9–5.4 mm) wide with a curved posterior edge; genitalia as in Figs. 7, 8.

Variation.—Coloration from light yellow to dark brown. Measurements of distance of ocular tubercle to external edge of carapace, distance between lateral eyes to lateral edge of carapace and width of pedipalpal tibia were constant. The range of the trichobothria of tibia IV was sbc 0.3–0.4, and sci 0.5–0.6.

Distribution.—This species is known only from Baja California Sur.

Natural history.—Specimens were mainly collected with pitfall traps and by hand under rocks in xeric vegetation surrounding La Purísima and San José Comondú oases and in lesser proportion in mesic vegetation in these localities. Both sexes were more abundant during summer (August–September), although some adults were captured in April. Specimens were more common in San José Comondú than in La Purísima. Some specimens have been seen in houses, where local people call them “vinagrillos” and considered them “poisonous.”

We are grateful to Oscar Armendariz for help with the drawings, Carlos Palacios for his help during field collections, and also to the editor and anonymous reviewers for their comments to this manuscript. The editing staff at CIBNOR improved the English text. This paper received financial support from Consejo Nacional de Ciencia y Tecnología (CONACyT) (SEMARTNAT-2002-C01-0052) México.

LITERATURE CITED

- Armas, L.F. de & A. Pérez-González. 2001. Los ambliopígididos de República Dominicana (Arachnida: Amblypygi). *Revista Ibérica de Aracnología* 3:47–66.
- Avila-Calvo, A.F. & L.F. de Armas. 1997. Lista de los ambliopígididos (Arachnida: Amblypygi) de México, Centroamérica y las Antillas. *Cocuyo (La Habana)* 6:31–32.
- Kraepelin, K. 1895. Revision der Tarantuliden Fabr. *Verhandlungen des Naturwissenschaftlichen Vereins in Hamburg* 13(3):3–53.
- Kraepelin, K. 1899. Scorpiones und Pedipalpi. *Tierreich* 8:I–xiii, 1–265.
- Mello-Leitão, C. 1931. Pedipalpos do Brasil e algumas notas sobre a Ordem. *Arachos Museum Nacional Rio de Janeiro* 33:7–72.
- Quintero, D. 1980. Systematics and evolution of *Acanthophrynus* Kraepelin (Amblypygi, Phryniidae). *Verhandlungen des 8. Internationalen Arachnologen-Kongress, Wien*. (J. Gruber ed.). H. Egermann, Wien.
- Quintero, D. 1981. The amblypygid genus *Phrynus* in the Americas (Amblypygi, Phryniidae). *Journal of Arachnology* 9:117–166.

- Quintero, D. 1983. Revision of the amblypygid spiders of Cuba and their relationship with the Caribbean and continental American amblypygid fauna. *Studies on the Fauna of Curaçao and other Caribbean Islands* 65:1–54.
- Vázquez-Rojas, I. 1996. Amblypygi. Pp. 71–72. In *Biodiversidad Taxonomía y Biogeografía de Artrópodos de México: Hacia una síntesis de su conocimiento*. (J. Llorente-Bousquets, A. García-Aldrete, E. González-Soriano, eds.). Instituto de Biología, Universidad Nacional Autónoma de México Mexico City, D.F., México.
- Weygoldt, P. 1996. The relationships of the south east African whip spiders *Hemiphrynus machadoi* Fage 1951 and *Phrynichus scullyi* Purcell, 1901: introduction of the new generic names *Xerophrynus* and *Phrynichodamon* (Chelicerata: Amblypygi). *Zoologischer Anzeiger* 235:117–130.
- Weygoldt, P. 2000. Whip Spiders. Their Biology, Morphology and Systematics. Apollo Books, Stenstrup.
- Wood, H.C. 1863. On the Pedipalpi of North America. *Journal of the Academy of Natural Sciences. Philadelphia* 5:357–376.

Manuscript received 15 June 2003, revised 23 October 2003.